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10/566,754

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Rina Reznik

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EXAMINER

MCCLAIN-COLEMAN, TYNESHA L.

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,754	<b>Applicant(s)</b> REZNIK ET AL.	
	<b>Examiner</b> TYNESHA MCCLAIN-COLEMAN	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060201</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by *Bailey et al.* US 20030138537 (hereinafter "*Bailey*").

3. With respect to claim 15, *Bailey* discloses adding sodium hydroxide solution to rosmarinic acid to convert rosmarinic acid to a water-soluble salt (paragraph [0076]). Rosmarinic acid is a naturally occurring antioxidant found in plants that are members of the *Labiatae* family (paragraphs [0023] and [0054]). The water-soluble salt is then extracted into the aqueous phase (paragraph [0022]). The pH of the water-soluble extract can be adjusted by adding citric acid (Abstract and paragraph [0062]). The water soluble extracts isolated after the aqueous extraction are suitable for use as a flavor stabilizer in many foods, beverages, oils, etc. (Abstract and paragraph [0062]). Examples of foods and beverages that can be stabilized include coffee, salsa, milk, wine, meat, poultry, beverages, oils, and citrus flavored compositions (paragraph [0067]).

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4. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by *Reznik* WO0039248 (hereinafter "*Reznik*").

5. Regarding claim 16, *Reznik* discloses combining 10 mg ascorbic acid (carboxylic acid) and 0.07 mg sodium rosmarinate (pages 17-18, Example 8). Sodium rosmarinate is a water soluble antioxidant material obtained from the plants of the *Labiatae* family (page 7, Detailed Description). Vitamins which are themselves known to be antioxidants, such as ascorbic acid, can themselves be protected from deterioration by use of rosmarinic acid and its derivatives (sodium rosmarinate) (page 9, 3<sup>rd</sup> paragraph). Food compositions, such as manufactured cereals, fruit or vegetable products, and ground meat products, which contain ascorbic acid or have ascorbic acid added to it, can be protected from oxidative deterioration with the addition of sodium rosmarinate (page 8, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs). The amounts taught by *Reznik* are considered to be "effective" since the claim does not attach any quantity to the enhancement, and as stated above, the materials of *Reznik* are known to prevent oxidative deterioration, therefore are considered preservative.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-5, 10, 11, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Reznik* WO0039248 (hereinafter "*Reznik*").

10. With respect to claims 1, 2, 14, and 16, *Reznik* discloses combining 10 mg ascorbic acid (carboxylic acid) and 0.07 mg sodium rosmarinate (pages 17-18, Example 8). Sodium rosmarinate is a water soluble antioxidant material obtained from the plants of the *Labiatae* family (page 7, Detailed Description). Vitamins which are themselves known to be antioxidants, such as ascorbic acid, can themselves be protected from deterioration by use of rosmarinic acid and its derivatives (sodium rosmarinate) (page 9,

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3<sup>rd</sup> paragraph). Food compositions, such as manufactured cereals, fruit or vegetable products, and ground meat products, which comprise ascorbic acid and oil or fat liable to oxidative deterioration, can be protected from oxidative deterioration with the addition of sodium rosmarinate (page 8, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs).

11. It is well known in the art that when cells encounter a free radical, the reactive radical may cause destruction in the cell. Cells continuously produce free radicals, and constant free radical damage eventually kills the cell. Antioxidants prevent free radicals from oxidation which stops the chain of reactions that damage cells. From this, it is expected that the presence of the antioxidants, such as sodium rosmarinate and ascorbic acid, inhibit the formation of undesired toxic substances.

12. However, *Reznik* does not disclose the weight ratio of sodium rosmarinate to ascorbic acid is within the range of about 1:1.5 to about 1:90 (claims 1 and 14) or about 1:3 to about 1:50 (claim 2).

13. *Reznik* teaches 10 mg/mL of ascorbic acid and 0.07 mg of sodium rosmarinate were present (Example 8, pages 17-18). The weight ratio of sodium rosmarinate to ascorbic acid would be 0.07:10, which is equivalent to a ratio of about 1:143.

14. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to interpret the weight ratio range of about 1:1.5 to about 1:90 (claim 1) disclosed by the applicant to include the weight ratio disclosed by *Reznik*.

15. One having ordinary skill in the art would have been motivated to do this because the applicant teaches the weight ratio is about 1:1.5 to about 1:90 as well as from about 1:3 to about 1:50, which includes values slightly below 1:1.5 and slightly about 1:90.

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Also, *Reznik* teaches that ascorbic acid is stabilized with small amounts of sodium rosmarinate. Therefore, it is expected for larger amounts of sodium rosmarinate as claimed by the applicant (about 1:1.5 to about 1:90 in claim 1 and about 1:3 to about 1:50 in claim 2) to stabilize ascorbic acid and enhance its antioxidative properties.

16. Regarding claims 3 and 4, *Reznik* discloses the antioxidant material may be solid or an aqueous solution (page 7, Detailed Description).

17. With respect to claims 5 and 10, *Reznik* discloses water in oil emulsions from soybean oil, PGPR emulsifier, water, and various antioxidants such as vitamin c (ascorbic acid) and sodium rosmarinate (Example 5b, page 16). Since soybean oil and PGPR emulsifier are edible and incorporated into various known food products, it is expected that they are both non-toxic substances.

18. It is well known in the art that when cells encounter a free radical, the reactive radical may cause destruction in the cell. Cells continuously produce free radicals, and constant free radical damage eventually kills the cell. Antioxidants prevent free radicals from oxidation which stops the chain of reactions that damage cells. From this, it is expected that the presence of the antioxidants, such as sodium rosmarinate and ascorbic acid, inhibit the formation of undesired toxic substances.

19. However, *Reznik* does not disclose combining sodium rosmarinate with vitamin c in the water in oil emulsion.

20. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine sodium rosmarinate with the vitamin c in the water in oil emulsion disclosed by *Reznik*.

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21. One having ordinary skill in the art would have been motivated to do this because *Reznik* teaches vitamins which are themselves known to be antioxidants, such as ascorbic acid, can themselves be protected from deterioration by use of rosmarinic acid and its derivatives (sodium rosmarinate) (page 9, 3rd paragraph). Also, *Reznik* teaches the antioxidant may be incorporate in oil, fat, and food compositions with ingredients liable to oxidative deterioration (page 8).

22. Regarding claim 11, *Reznik* discloses the concentration of vitamin c (ascorbic acid) and sodium rosmarinate in the water in oil emulsion to be 0.1% and 0.01%, respectively. When these components are combined, the ratio of sodium rosmarinate to ascorbic acid would be 0.01:0.1, which is equivalent to 1:10 and falls within the applicant's claimed range.

23. Claims 1, 2, 4, 8, 9, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Todd, Jr.* US 6099879 (herein after "*Todd, Jr.*") as evidenced by *Bailey* US 20030138537 (hereinafter "*Bailey*") in view of *Reznik* WO0039248 (hereinafter "*Reznik*"). *Bailey* is merely used to show the effects of antioxidants on myoglobin.

24. With respect to claims 1, 2, 4, 14, and 16, *Todd, Jr.* discloses the protective effect of rosemary extract or one or more of its antioxidant ingredients, singly or multiply with ascorbic acid (carboxylic acid), an antioxidant, when applied to meat or meat products (column 4, lines 9-11 and column 7, lines 34-39). The active antioxidant ingredient of the rosemary extract is rosmarinic acid (column 7, lines 58-60). *Todd, Jr.*

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teaches from about 20ppm to about 400ppm of ascorbic acid and from about 20 ppm to about 400 ppm rosmarinic acid should be present based upon the total weight of the meat or meat product (column 8, lines 16-21 and 36-37). Possible weight ratios of rosmarinic acid to ascorbic acid include 1:20 (claim 2) (20:400) and 1:1 (20:20 or 400:400), which is about 1:1.5 (claims 1 and 14), and they fall within the applicant's claimed ranges.

25. It is well known in the art that when cells encounter a free radical, the reactive radical may cause destruction in the cell. Cells continuously produce free radicals, and constant free radical damage eventually kills the cell. Antioxidants prevent free radicals from oxidation which stops the chain of reactions that damage cells. From this, it is expected that the presence of the antioxidants, such as rosmarinic acid and ascorbic acid, inhibit the formation of undesired toxic substances.

26. However, *Todd, Jr.* does not disclose using sodium rosmarinate with ascorbic acid in an aqueous solution to treat meat products.

27. *Reznik* discloses combining ascorbic acid and sodium rosmarinate (pages 17-18, Example 8). Sodium rosmarnate is a water soluble antioxidant material obtained from the plants of the *Labiatae* family (page 7, Detailed Description). The antioxidant material may be in the form of an aqueous solution (claim 4) (page 7, Detailed Description).

28. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the rosmarinic acid disclosed by *Todd, Jr.* with the sodium rosmarinate disclosed by *Reznik*.

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29. One having ordinary skill in the art would have been motivated to do this because *Reznik* teaches vitamins which are themselves known to be antioxidants, such as ascorbic acid, can themselves be protected from deterioration by use of rosmarinic acid and its derivatives (sodium rosmarinate) (page 9, 3<sup>rd</sup> paragraph). *Reznik* also teaches that the antioxidant material may be incorporated into food compositions such as ground meat products (page 8, 2<sup>nd</sup> paragraph).

30. Regarding claims 8 and 9, *Todd, Jr.* discloses the protective effect of rosemary extract or one or more of its antioxidant ingredients, singly or multiply with ascorbic acid, an antioxidant, when applied to meat or meat products (column 4, lines 9-11 and column 7, lines 34-39). The active antioxidant ingredient of the rosemary extract is rosmarinic acid (column 7, lines 58-60). *Todd, Jr.* teaches from about 20ppm to about 400ppm of ascorbic acid and from about 20 ppm to about 400 ppm rosmarinic acid should be present based upon the total weight of the meat or meat product (column 8, lines 16-21 and 36-37). A possible weight ratio of rosmarinic acid to ascorbic acid is 1:20, which includes 20 ppm of rosmarinic acid per 400 ppm of ascorbic acid and falls within the applicant's claimed range (claim 9).

31. It is well known in the art that when cells encounter a free radical, the reactive radical may cause destruction in the cell. Cells continuously produce free radicals, and constant free radical damage eventually kills the cell. Antioxidants prevent free radicals from oxidation which stops the chain of reactions that damage cells. From this, it is expected that the presence of the antioxidants, such as rosmarinic acid and ascorbic acid, inhibit the formation of undesired toxic substances.

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32. *Bailey* teaches that antioxidants inhibit metmyoglobin (the oxidized form of myoglobin) formation to prevent color changes in meat products (paragraph [0131]).

Since antioxidants inhibit the formation of metmyoglobin, it is expected for the antioxidants to stabilize myoglobin by preventing it from oxidizing.

33. However, *Todd, Jr.* does not disclose using sodium rosmarinate with ascorbic acid in an aqueous solution to treat meat products.

34. *Reznik* discloses combining ascorbic acid and sodium rosmarinate (pages 17-18, Example 8). Sodium rosmarinate is a water soluble antioxidant material obtained from the plants of the *Labiatae* family (page 7, Detailed Description). The antioxidant material may be in the form of an aqueous solution (page 7, Detailed Description).

35. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the rosmarinic acid disclosed by *Todd, Jr.* with the sodium rosmarinate disclosed by *Reznik*.

36. One having ordinary skill in the art would have been motivated to do this because *Reznik* teaches vitamins which are themselves known to be antioxidants, such as ascorbic acid, can themselves be protected from deterioration by use of rosmarinic acid and its derivatives (sodium rosmarinate) (page 9, 3<sup>rd</sup> paragraph). *Reznik* also teaches that the antioxidant material may be incorporated into food compositions such as ground meat products (page 8, 2<sup>nd</sup> paragraph).

37. Claims 1, 6, 12, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bailey* US 20030138537 (hereinafter “*Bailey*”) as evidenced by

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*Naidu*, "Natural Food Antimicrobial Systems", 2000 (no month), CRC Press, page 691 (hereinafter "*Naidu*") in view of *Todd, Jr.* US 6099879 (herein after "*Todd, Jr.*"). *Naidu* is merely used to show the antimicrobial activity of citric acid.

38. With respect to claims 1, 6, 12, 13, 15, and 16, *Bailey* discloses sodium hydroxide (NaOH) solution was added to convert rosmarinic acid to a water-soluble salt (paragraph [0076]). Rosmarinic acid is a naturally occurring antioxidant extracted from plants that are members of the *Labiatae* family (paragraphs [0023] and [0054]). The water-soluble salts are extracted into the aqueous phase (paragraph [0022]). The pH of the water-soluble extract can be adjusted by adding citric acid (carboxylic acid, claim 16), and the volume can be adjusted by the addition of a solvent such as water (claims 6 and 12) (Abstract and paragraph [0062]). The water soluble extracts isolated after the aqueous extraction are suitable for use as a flavor stabilizer in many foods, beverages, oils, etc. (Abstract and paragraph [0062]). Examples of foods and beverages that can be stabilized include coffee, salsa, milk, wine, meat, poultry, beverages, oils, and citrus flavored compositions (paragraph [0067]). The water soluble extract can be used at concentrations between about 5 and 1000ppm (paragraph [0015]).

39. *Naidu* teaches citric acid elicits antimicrobial activity (Antimicrobial Activity, page 691). Citric acid may create a synergistic relationship with antioxidants (Antimicrobial Activity, page 691). Citric acid is shown to exhibit certain antimicrobial properties against mold and bacteria (Antimicrobial Activity, page 691).

40. However, *Bailey* does not disclose the weight ratio of sodium rosmarinate to citric acid is within the range of about 1:100 to about 1:500.

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41. *Todd, Jr.* teaches from about 20ppm to about 400ppm of citric acid and from about 20 ppm to about 400 ppm rosmarinic acid should be present based upon the total weight of the meat or meat product (column 8, lines 25-27 and 36-37).

42. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the amount of citric acid used by *Todd, Jr.* into the water soluble extract disclosed by *Bailey*.

43. One having ordinary skill in the art would have been motivated to do this because *Todd, Jr.* teaches that citric acid reacts advantageously in this amount when used with the antioxidant ingredient of rosemary extract (rosmarinic acid) to stabilize a meat product (Abstract and column 8, lines 8-13). Also, a possible weight ratio of the water soluble extract (between about 5 and 1000ppm) to citric acid (from about 20 to about 400 ppm) includes 5:400, which is about 4:400. This is equivalent to 1:100 and falls within the applicant's claimed range.

44. Claims 1, 7, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Branen*, "Food Additives", 2002 (no month), CRC Press, Second Edition, Pages 648-649 (hereinafter "*Branen*") in view of *Reznik* WO0039248 (hereinafter "*Reznik*").

45. With respect to claims 1 and 7, *Branen* discloses sodium propionate can be used as an antimicrobial and flavoring agent in baked goods, nonalcoholic beverages, cheeses, confections and frostings, gelatins, puddings and fillings, jams and jellies, meat products, and soft candy (page 649). Sodium propionate can be used as a

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preservative at a level not to exceed 0.1% by weight of the finish product in artificially sweetened fruit jelly, preserves, and jams (page 648).

46. However, *Branen* does not disclose combining sodium rosmarinate with sodium propionate and incorporating the mixture into foodstuff.

47. *Reznik* discloses incorporating sodium rosmarinate, which is a water-soluble antioxidant isolated from the tissue of plants of the *Labiatae* family, into food compositions such as sugar-based confectionery, beverage and beverage concentrates, ground meat products, and dairy products (pages 7-9). The antioxidant constitutes preferably from about 0.0005 to about 0.1% by weight of the food composition (page 8, 3<sup>rd</sup> paragraph). The substance incorporating antioxidant may be in the form of a solution, suspension, dispersion, etc. (page 7, Detailed Description).

48. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the sodium rosmarinate disclosed by *Reznik* with the sodium propionate disclosed by *Branen*.

49. One having ordinary skill in the art would have been motivated to do this because *Reznik* teaches sodium rosmarinate will stabilize ingredients liable to oxidative deterioration found in food compositions such as sugar-based confectionery, beverage or beverage concentrates, ground meat products, and dairy products (pages 8-9) which, along with the sodium propionate disclosed by *Branen*, will extend the shelf life of the food products. Also, possible weight ratio of the sodium rosmarinate disclosed by *Reznik* to the sodium propionate disclosed by *Branen* is 1:200 (0.0005%:0.1%), and falls within the applicant's claimed range.

***Conclusion***

50. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TYNESHA MCCLAIN-COLEMAN whose telephone number is (571)270-1153. The examiner can normally be reached on Monday - Thursday 7:30AM - 5:00PM Eastern Time.

51. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571)272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

52. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TYNESHA L MCCLAIN-COLEMAN/  
Patent Examiner, Art Unit 1794

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 1794